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REMARKS

Claims 1-11 are pending in the application. Claims 1, 4, and 9 have been amended to overcome the claim objections, but are not amended substantively. Claim 10 has been amended to overcome the rejection under 35 USC 101. The amendments are fully supported by the application as originally filed.

The title was objected to, and a new title required that is clearly indicative of the invention to which the claims are directed. A new title has been provided, as recommended by the Examiner. Approval of the new title is respectfully requested.

Claims 1, 4, and 9 were objected to because of typographical errors in the phrase "the lay of light," which has been replaced by "the ray of light," thereby obviating the claim objections.

Claim 10 was rejected under 35 USC 101 as being directed to non-statutory subject matter. Claim 10 has been amended to recite an apparatus in which a computer program is embodied, which constitutes "statutory subject matter." Withdrawal of the rejection is respectfully requested.

Claims 4, 6, and 9-11 were rejected under 35 USC 102(b) as being anticipated by U.S. Patent 5,517,603 to Kelley et al. ("Kelley"). Claims 1 and 3 were rejected under 35 USC 103(a) as being unpatentable over U.S. Patent 6,897,865 to Higashiyama in view of U.S. Patent 5,043,922 to Matsumoto. Claims 2, 5, 7, and 8 also were rejected over the above references. These rejections are respectfully traversed.

Regarding the rejection of independent claims 4 and 9 over Kelley, the Kelley reference does not teach or suggest a graphic processing apparatus including a shadow polygon conversion section for receiving graphic data on shadow polygons and thereafter performing the functions of: "converting the graphic data to visual-point coordinates and depth values" and "outputting the visual-point coordinates and the depth values" in a sorted state.

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In Kelley, only the graphic data of active objects is converted to coordinates, described in Kelley as "vertical interpolation" (see, e.g., column 14, lines 5-10 and 37-40; FIG. 7). Hidden surface removal is then performed "to eliminate pixels that will not be shaded, because they are 'behind' other objects" (column 15, lines 17-20).

Referring to FIGS. 7 and 8b of Kelley, hidden surface removal in Kelley involves calculating Z-values for pixels, and then comparing the Z-values of different objects (see column 15, lines 38-47). In Kelley, shadow analysis is performed by calculating sets of dummy polygons (see column 21, lines 39-49). As stated in column 21, lines 47-49: "Using these dummy polygons, the processing unit then determines whether each pixel on a visible object is inside one of the shadow volumes."

Therefore, Kelley does not teach or suggest "a shadow polygon conversion section" such that upon input of graphic data on shadow polygons, the graphic data is converted to visual-point coordinates. In Kelley, the relative positions of two objects are determined solely by comparing their respective Z-values, and shadow analysis is performed by calculating dummy polygons to determine whether each pixel is inside one of the shadow volumes. There is no teaching or suggestion of converting graphic data on shadow polygons to visual-point coordinates.

For at least the reasons discussed above, the Kelley reference does not anticipate or otherwise render obvious the Applicants' claimed invention as recited in independent claims 4 and 9.

Regarding the rejection of independent claim 1 over Higashiyama in view of Matsumoto, the Higashiyama reference does not teach or suggest a graphic processing apparatus including a "hidden surface removal and shadowing processing section for obtaining a coordinate region that is positioned behind the front-facing shadow polygons and in front of the back-facing shadow polygons" based on (1) visual-point coordinates, (2) depth values, and (3) the Z-buffer memory, as recited in claim 1.

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Referring to page 12, last paragraph to page 13, first paragraph of the Office Action, column 6, lines 19-23 of Higashiyama was cited allegedly for disclosing a "shadowing processing section." However, the cited passage of Higashiyama merely defines shadow pixels as corresponding to either front-facing polygons or back-facing polygons based on Z-values.

There is no teaching or suggestion that the shadow pixels disclosed in Higashiyama are used to obtain a "coordinate region" based on all of: (1) visual-point coordinates, (2) depth values, and (3) the Z-buffer memory. Higashiyama merely discloses that the Z-values are used to distinguish front-facing polygons from back-facing polygons.

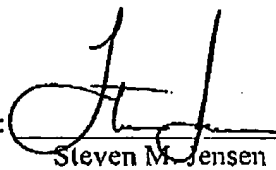
Therefore, even if the Higashiyama and Matsumoto references were somehow combined, the proposed combination would not teach or suggest the Applicants' claimed invention as recited in independent claim 1.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,

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